

CURRICULUM VITAE ET STUDIORUM

of Dr. **Luigi Gurreri**

19 June 2026

PERSONAL INFORMATION

Name: **Luigi**
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EDUCATION AND QUALIFICATIONS

- **07/10/2022-present:** “**Abilitazione Scientifica Nazionale**” in “Settore concorsuale **09/D3** – Impianti e processi industriali chimici”, “fascia II”;
- **10/06/2021-present:** “**Abilitazione Scientifica Nazionale**” in “Settore concorsuale **09/D2** – Sistemi, metodi e tecnologie dell'ingegneria chimica e di processo”, “fascia II”;
- **01/01/2012-31/12/2014:** **PhD** in Chemical and Materials Engineering, obtained on 20/03/2015, with certification of *Doctor Europaeus*, at the University of Palermo, Palermo, Italy;
- 09/2007-11/2009: M. Sc. in Environmental Engineering, obtained on 20/11/2009 at the University of Palermo with honours (110/110 cum laude);
- 09/2001-05/2007: B. Sc. in Land and Environmental Engineering, obtained on 04/05/2007 at the University of Palermo (106/110);
- 09/96-07/2001: Secondary education diploma obtained at the Liceo Classico Empedocle in Agrigento, Italy (100/100).

TEACHING ACTIVITY

Courses

- **A.Y. 2025/2026 and 2024/2025, co-teacher** of the semestral course “**Industrial Chemistry and Technologies**”, 60 hours, 6 CFU, SSD ING-IND/27, SC 09/D3, English, University of Catania, master's degree in Chemical Engineering for Industrial Sustainability;
- **A.Y. 2023/2024**, teacher of the semestral course “**Industrial Chemistry and Technologies**”, 60 hours, 6 CFU, SSD ING-IND/27, SC 09/D3, English, University of Catania, master's degree in Chemical Engineering for Industrial Sustainability;
- **A.Y. 2024/2025 and 2025/2026**, teacher of the course “**Industrial symbiosis and circular economy for the sustainability of industrial processes**”, 30 hours, 3 CFU, SSD ING-IND/25, SC 09/D3, Italian, University of Catania, degree in Industrial Engineering and Management Engineering;
- **A.Y. 2022/2023**, teacher of the course “**Industrial symbiosis and circular economy in industrial engineering**”, 30 hours, 3 CFU, SSD ING-IND/25, SC 09/D3, Italian, University of Catania, degree in Industrial Engineering;
- **A.Y. 2021/2022**, teacher of lessons on “**Industrial symbiosis**”, 6 hours, SSD ING-IND/25, SC 09/D3, Italian, University of Catania, second-level master “MANagemenT della Transizione Ecologica di Impresa (MATTEI)”.

Other didactic activity

Tutorials for courses

- **A.Y. 2022/2023, “Chemical plants”** (12 CFU, SSD ING-IND/25), 15 hours, University of Catania, Department of Civil Engineering and Architecture (DICAR), master's degree in Chemical Engineering for Industrial Sustainability;
- **A.Y. 2020/2021 and 2021/2022, “Membrane technologies for biomedical engineering”** (6 CFU, SSD ING-IND/26), 23 hours, University of Palermo, Engineering Department, bachelor's degree in Biomedical Engineering;
- **A.Y. from 2018/2019 to 2020/2021, “Membrane separation operations”** (6 CFU, SSD ING-IND/26), about 20 hours, University of Palermo, Engineering Department, bachelor's degree in Chemical Engineering;
- **A.Y. from 2018/2019 to 2021/2022, “Models for thermofluid dynamics”** (6 CFU, SSD ING-IND/19), 24 hours, University of Palermo, Engineering Department, master's degree in Energy Engineering.

Participation in examination committees

- **A.Y. 2021/2022 to the A.Y. 2025/2026, “Chemical Plants”** (12 CFU, SSD ING-IND/25), University of Catania, Department of Civil Engineering and Architecture (DICAR), master's degree in Chemical Engineering for Industrial Sustainability;
- **A.Y. 2020/2021 and 2021/2022, “Membrane technologies for biomedical engineering”** (6 CFU, SSD ING-IND/26), University of Palermo, Engineering Department, bachelor's degree in Biomedical Engineering;
- **A.Y. from 2018/2019 to 2020/2021, “Membrane separation operations”** (6 CFU, SSD ING-IND/26), University of Palermo, Engineering Department, bachelor's degree in Chemical Engineering.

Participation in master’s degree examination boards

- **Master’s degree in Chemical Engineering for Industrial Sustainability**, University of Catania, Department of Civil Engineering and Architecture (DICAR):
 - 23/05/2025
 - 16/09/2024
 - 19/07/2024
 - 19/01/2024

Co-supervisor of completed theses:

- **4 theses for bachelor's degree** in Chemical Engineering, University of Palermo. Topics: fundamentals and applications of electrodialysis and electrodialysis with bipolar membranes for the production of freshwater and chemicals;
- **15 theses for master's degree** in Chemical Engineering, University of Palermo. Topics: electrodialysis, reverse electrodialysis, and membrane distillation, studied via numerical modelling and experimental testing;
- **2 theses for master's degree** in Chemical Engineering for Industrial Sustainability, University of Catania. Topics: energy saving and process control in wastewater treatment plants; Life Cycle Assessment of innovative treatment plants for pharmaceutical wastewater;
- **1 PhD thesis** in Systems, Energy, Computer and Telecommunications Engineering, University of Catania. Topic: sustainability and innovation of microalgal systems.

Co-tutor of students in ongoing thesis work

- **1 master's degree student** in Chemical Engineering for Industrial Sustainability, University of Catania. Topic: Environmental, economic, and social Life Cycle Assessment of the Pharma-Detox pilot plant for the detoxification of pharmaceutical wastewater;

- **4 PhD students** in Systems, Energy, Computer and Telecommunications Engineering, University of Catania. Topics: treatment and valorization of volcanic ash and incineration bottom ash, waste mix valorization and industrial symbiosis approach for the production of sustainable biofertilizers.

“Cultore della Materia”

- **24/06/2021 – 31/03/2023** for the course “**Tecnologie a membrana per l’ingegneria biomedica**” at the University of Palermo, Engineering Department;
- **20/06/2019-19/06/2021** for the courses “**Tecnologie a membrana per l’ingegneria biomedica**” and “**Operazioni di separazione a membrana**”, at the University of Palermo, Engineering Department.

Speaker in seminars

- **2017, “COMSOL Webinar: multi-physical simulation of electrochemical processes”**, 1 hour.

ACTIVITY OF SCIENTIFIC RESEARCH

The experience gained in scientific research from 2022 to present has been primarily devoted to 1) the sustainability assessment of microalgae-based systems, 2) the development and life cycle assessment of energy-efficient wastewater treatment plants, and 3) the production of sustainable biofertilizers from waste and residues.

Between 2011 and 2021, the scientific activity has been primarily focused on studying membrane processes, including electrodialysis, reverse electrodialysis, membrane distillation, and haemodialysis, via modelling and experiments.

Professional skills

- Life cycle assessment, sustainability analysis of microalgal systems and wastewater treatment plants, industrial symbiosis approach for the eco-efficiency in the management of agro-industrial waste;
- Computational fluid dynamics (CFD), simulation of transport phenomena, multi-physical simulation, and process modelling for electrodialysis, reverse electrodialysis and other membrane processes (Membrane Distillation, Haemodialysis, and Reverse Osmosis);
- Experimental testing of laboratory and pilot-scale membrane systems;
- Use of chemical and electrochemical laboratory instrumentation;
- Drafting and revising reports and scientific articles;
- Preparation of project proposals (including the financial part) for international calls.

Computer skills

- Office suite (Excel, Word, Power Point) and Web browser.
- Technical software: SimaPro, ANSYS CFX, ANSYS WORKBENCH, ANSYS MECHANICAL, CAD, COMSOL.

Language skills

- Mother tongue: Italian.
- Good level of knowledge of written and spoken English.
- Basic user of French.

Scientific production

The results of the performed scientific activity have been presented to the scientific community through the works listed below. They include 59 peer-reviewed articles and 8 book chapters, with 3032 citations and an H-index of 29 on 19/06/2026 (<https://www.scopus.com/authid/detail.uri?authorId=35184950400>).

Articles indexed in Scopus and/or WoS

1. N. Cancilla, A. Cipollina, L. Gurreri, M. Ciofalo, *Direct Contact Membrane Distillation: A Critical Review of Transmembrane Heat and Mass Transfer Models*, Membranes (Basel). 16 (2026) 64. <https://doi.org/10.3390/membranes16020064>;
2. G. Airò Farulla, L. Gurreri, M.P. Maniscalco, M. Ferraro, *Alternative hydrogen carriers for button-cell oxide-ion solid oxide fuel cells: A critical review outlining current status, challenges, and prospects*, Int. J. Hydrogen Energy. 218 (2026) 153714. <https://doi.org/10.1016/j.ijhydene.2026.153714>;
3. G. Airò Farulla, L. Gurreri, G. Marsala, D. Aloisio, *Modelling of Lithium-Ion Battery Packs for the Prediction of their Thermal Degradation under Different C-Rates*, Chem. Eng. Trans. 119 (2025) 331–336. <https://doi.org/10.3303/CET25119056>;
4. D. Bonanno, A. Luciano, C. Gatto, G. Benina, L. Gurreri, G. Mancini, *Circular and Sustainable Approaches for the Management and Treatment of Incineration Bottom Ash*, Chem. Eng. Trans. 119 (2025) 307–312. <https://doi.org/10.3303/CET25119052>;
5. L. Gurreri, M. Calanni Rindina, D. Bonanno, A. Luciano, D. Fino, G. Mancini, *Environmental Impact of Microalgae Production in an Industrial-Scale Plant: A Comparative Scenario Analysis*, Chem. Eng. Trans. 119 (2025) 199–204. <https://doi.org/10.3303/CET25119034>;
6. D. Bonanno, A. Luciano, L. Gurreri, M. Coltelli, G. Benina, G. Mancini, *Sustainable Solutions for the Management and Valorization of Volcanic Ash*, Chem. Eng. Trans. 117 (2025) 505–510. <https://doi.org/10.3303/CET25117085>;
7. L. Gurreri, M. Calanni Rindina, A. Luciano, D. Fino, G. Mancini, *Is the production of microalgae and the derived bioproducts sustainable? A meta-review outlining the challenges and opportunities of circular bioeconomy and zero-waste approaches*, J. Environ. Chem. Eng. 13 (2025) 118053. <https://doi.org/10.1016/j.jece.2025.118053>;
8. N. Cancilla, L. Gurreri, M. Ciofalo, A. Cipollina, A. Tamburini, G. Micale, *Mathematical modelling of hollow-fiber haemodialysis modules*, Phys. Sci. Rev. (2025) 1–40. <https://doi.org/10.1515/psr-2024-0062>;
9. A. Cosenza, S. Lima, L. Gurreri, G. Mancini, F. Scargiali, *Microalgae in the Mediterranean area: A geographical survey outlining the diversity and technological potential*, Algal Res. 82 (2024) 103669. <https://doi.org/10.1016/j.algal.2024.103669>;
10. L. Gurreri, M. Calanni Rindina, A. Luciano, L. Falqui, G. Mancini, *Life Cycle Assessment Based on Primary Data of an Industrial Plant for Microalgae Cultivation*, Chem. Eng. Trans. 109 (2024) 493–498. <https://doi.org/10.3303/CET24109083>;
11. L. Gurreri, M. Calanni Rindina, A. Luciano, L. Falqui, D. Fino, G. Mancini, *Microalgae production in an industrial-scale photobioreactors plant: A comprehensive Life Cycle assessment*, Sustain. Chem. Pharm. 39 (2024) 101598. <https://doi.org/10.1016/j.scp.2024.101598>;
12. A. Politano, R.A. Al-Juboori, S. Alnajdi, A. Alsaati, A. Athanassiou, M. Bar-Sadan, A.N. Beni, D. Campi, A. Cupolillo, G. D'Olimpio, G. D'Andrea, H. Estay, D. Fragouli, L. Gurreri, J. Gilron, N. Hilal, J. Occhiuzzi, M. Roldan Carvajal, A. Ronen, S. Santoro, M. Tedesco, R.A. Tufa, M. Ulbricht, D.M. Warsinger, G. Zaragoza, D. Xevgenos, Y.-W. Zhang, M. Zhou, E. Curcio, *2024 roadmap on membrane desalination technology at the water-energy nexus*, J. Phys. Energy. 6 (2024) 021502. <https://doi.org/10.1088/2515-7655/ad2cf2>;
13. L. Gurreri, M. Calanni Rindina, A. Luciano, L. Falqui, G. Mancini, D. Fino, *Life cycle inventory based on primary data of an industrial plant for the cultivation of chlorella vulgaris*, Chem. Eng. Trans. 105 (2023) 229–234. <https://doi.org/10.3303/CET23105039>;
14. L. Gurreri, M. Calanni Rindina, A. Luciano, S. Lima, F. Scargiali, D. Fino, G. Mancini, *Environmental Sustainability of Microalgae-Based Production Systems: Roadmap and Challenges towards the Industrial Implementation*, Sustain. Chem. Pharm. 35 (2023) 101191. <https://doi.org/10.1016/j.scp.2023.101191>;
15. A. Culcasi, L. Gurreri, A. Tamburini, A. Cipollina, G. Micale, *Performance and perspectives of an acid/base flow battery*, Chem. Eng. Trans. 100 (2023) 667–672. <https://doi.org/10.3303/CET23100112>;

16. N. Cancilla, L. Gurreri, M. Ciofalo, A. Cipollina, A. Tamburini, G. Micale, *Hydrodynamics and mass transfer in straight fiber bundles with non-uniform porosity*, Chem. Eng. Sci. 279 (2023) 118935. <https://doi.org/10.1016/j.ces.2023.118935>;
17. A. Culcasi, L. Gurreri, A. Tamburini, A. Cipollina, I.D.L. Bogle, G. Micale, *Improving efficiency and discharge power of acid-base flow battery via a bi-objective optimisation*, J. Energy Storage. 66 (2023) 107429. <https://doi.org/10.1016/j.est.2023.107429>;
18. A. Filingeri, L. Gurreri, M. Ciofalo, A. Cipollina, A. Tamburini, G. Micale, *Current distribution along electrodialysis stacks and its influence on the current-voltage curve: behaviour from near-zero current to limiting plateau*, Desalination. 556 (2023) 116541. <https://doi.org/10.1016/j.desal.2023.116541>;
19. N. Cancilla, L. Gurreri, M. La Rosa, M. Ciofalo, A. Cipollina, A. Tamburini, G. Micale, *Influence of bundle porosity on shell-side hydrodynamics and mass transfer in regular fiber arrays: A computational study*, Int. J. Heat Mass Transf. 203 (2023) 123841. <https://doi.org/10.1016/J.IJHEATMASTRANSFER.2022.123841>;
20. A. Culcasi, L. Gurreri, A. Tamburini, I.D.L. Bogle, G. Micale, *A Bi-objective Optimization Study of an Acid-Base Flow Battery for High Efficiency and Improved Power Density*, Chem. Eng. Trans. 96 (2022) 133–138. <https://doi.org/10.3303/CET2296023>;
21. F. Giacalone, P. Catrini, L. Gurreri, A. Tamburini, A. Cipollina, G. Micale, A. Piacentino, *Exergy analysis of electrodialysis for water desalination: Influence of irreversibility sources*, Energy Convers. Manag. 258 (2022) 115314. <https://doi.org/10.1016/j.enconman.2022.115314>;
22. A. Culcasi, L. Gurreri, A. Cipollina, A. Tamburini, G. Micale, *A comprehensive multi-scale model for bipolar membrane electrodialysis (BMED)*, Chem. Eng. J. 437 (2022) 135317. <https://doi.org/10.1016/j.cej.2022.135317>;
23. N. Cancilla, L. Gurreri, G. Marotta, M. Ciofalo, A. Cipollina, A. Tamburini, G. Micale, *Performance Comparison of Alternative Hollow-Fiber Modules for Hemodialysis by Means of a CFD-Based Model*, Membranes (Basel). 12 (2022) 118. <https://doi.org/10.3390/membranes12020118>;
24. L. Gurreri, M. La Cerva, J. Moreno, B. Goossens, A. Trunz, A. Tamburini, *Coupling of electromembrane processes with reverse osmosis for seawater desalination: Pilot plant demonstration and testing*, Desalination. 526 (2022) 115541, <https://doi.org/10.1016/j.desal.2021.115541>;
25. N. Cancilla, L. Gurreri, G. Marotta, M. Ciofalo, A. Cipollina, A. Tamburini, G. Micale, *A porous media CFD model for the simulation of hemodialysis in hollow fiber membrane modules*, J. Memb. Sci. 646 (2022) 120219, <https://doi.org/10.1016/j.memsci.2021.120219>;
26. I. El Mokhtar, L. Gurreri, A. Tamburini, A. Cipollina, M. Ciofalo, S. al Taher Bouguecha, G. Micale, *CFD prediction of flow, heat and mass transfer in woven spacer-filled channels for membrane processes*, Int. J. Heat Mass Transf., 173 (2021) 121246, <https://doi.org/10.1016/j.ijheatmasstransfer.2021.121246>;
27. L. Gurreri, A. Tamburini, G. Micale, *Electromembrane Processes: Experiments and Modelling*, Membranes (Basel). 11 (2021) 149. <https://doi.org/10.3390/membranes11020149>;
28. A. Culcasi, L. Gurreri, G. Micale, A. Tamburini, *Bipolar Membrane Reverse Electrodialysis for the sustainable recovery of energy from pH gradients of industrial wastewater: Performance prediction by a validated process model*, J. Environ. Manag. 287 (2021) 112319, <https://doi.org/10.1016/j.jenvman.2021.112319>;
29. L. Gurreri, A. Filingeri, M. Ciofalo, A. Cipollina, M. Tedesco, A. Tamburini, G. Micale, *Electrodialysis with asymmetrically profiled membranes: Influence of profiles geometry on desalination performance and limiting current phenomena*, Desalination. 506 (2021) 115001, <https://doi.org/10.1016/j.desal.2021.115001>;
30. N. Cancilla, L. Gurreri, G. Marotta, M. Ciofalo, A. Cipollina, A. Tamburini, G. Micale, *CFD prediction of shell-side flow and mass transfer in regular fiber arrays*, Int. J. Heat Mass Transf. 168 (2021) 120855, <https://doi.org/10.1016/j.ijheatmasstransfer.2020.120855>;
31. G. Battaglia, L. Gurreri, M. Ciofalo, A. Cipollina, I.D.L. Bogle, A. Pirrotta, G. Micale, *A 2-D model of electrodialysis stacks including the effects of membrane deformation*, Desalination 500 (2021) 114835, <https://doi.org/10.1016/j.desal.2020.114835>;
32. A. Culcasi, L. Gurreri, A. Tamburini, A. Cipollina, G. Micale, *Effect of Design Features and Operating Conditions on the Performance of a Bipolar Membrane-Based Acid/Base Flow Battery*, Chem. Eng. Trans., 86 (2021) 1387–1392, <https://doi.org/10.3303/CET2186232>;

33. R. Pärnamäe, L. Gurreri, J. Post, J. J.W. van Egmond, A. Culcasi, M. Saakes, J. Cen, E. Goosen, A. Tamburini, D.A. Vermaas, M. Tedesco, *The Acid–Base Flow Battery: Sustainable Energy Storage via Reversible Water Dissociation with Bipolar Membranes*, *Membranes* (Basel) 409 (2020) 10, <https://doi.org/10.3390/membranes10120409>;
34. A. Zaffora, A. Culcasi, L. Gurreri, A. Cosenza, A. Tamburini, M. Santamaria, G. Micale, *Energy Harvesting by Waste Acid/Base Neutralization via Bipolar Membrane Reverse Electrodialysis*, *Energies*, 13 (2020) 5510, <https://doi.org/10.3390/en13205510>;
35. A. Culcasi, L. Gurreri, A. Zaffora, A. Cosenza, A. Tamburini, G. Micale, *On the modelling of an Acid/Base Flow Battery: An innovative electrical energy storage device based on pH and salinity gradients*, *Appl. Energy* 277 (2020) 115576, <https://doi.org/10.1016/j.apenergy.2020.115576>;
36. L. Gurreri, A. Tamburini, A. Cipollina, G. Micale, *Electrodialysis applications in wastewater treatment for environmental protection and resources recovery: a systematic review on progress and perspectives*, *Membranes* (Basel) 10 (2020) 1–82, <https://doi.org/10.3390/membranes10070146>;
37. A. Culcasi, L. Gurreri, A. Zaffora, A. Cosenza, A. Tamburini, A. Cipollina, G. Micale, *Ionic shortcut currents via manifolds in reverse electrodialysis stacks*, *Desalination* 485 (2020) 114450, <https://doi.org/10.1016/j.desal.2020.114450>;
38. A. Campione, A. Cipollina, E. Toet, L. Gurreri, I. D. L. Bogle, G. Micale, *Water desalination by capacitive electrodialysis: Experiments and modelling*, *Desalination* 473 (2020) 114150, <https://doi.org/10.1016/J.DESAL.2019.114150>;
39. G. Battaglia, L. Gurreri, A. Cipollina, A. Pirrotta, S. Velizarov, M. Ciofalo, G. Micale, *Fluid-structure interaction and flow redistribution in membrane-bounded channels*, *Energies* 12 (2019) 4259, <https://doi.org/10.3390/EN12224259>;
40. M. La Cerva, L. Gurreri, A. Cipollina, A. Tamburini, M. Ciofalo, G. Micale, *Modelling and cost analysis of hybrid systems for seawater desalination: electromembrane pre-treatments for Reverse Osmosis*, *Desalination* 467 (2019) 175–195, <https://doi.org/10.1016/J.DESAL.2019.06.010>;
41. G. Battaglia, L. Gurreri, G. Airò Farulla, A. Cipollina, A. Pirrotta, G. Micale, M. Ciofalo, *Pressure-Induced Deformation of Pillar-Type Profiled Membranes and Its Effects on Flow and Mass Transfer*, *Computation* 7 (2019) 32, <https://doi.org/10.3390/computation7020032>;
42. M. Ciofalo, M. La Cerva, M. Di Liberto, L. Gurreri, A. Cipollina, G. Micale, *Optimization of net power density in Reverse Electrodialysis*, *Energy* 181 (2019) 576–588, <https://doi.org/10.1016/j.energy.2019.05.183>;
43. A. Campione, A. Cipollina, I. D. L. Bogle, L. Gurreri, A. Tamburini, M. Tedesco, G. Micale, *A hierarchical model for novel schemes of electrodialysis desalination*, *Desalination* 465 (2019) 79–93, <https://doi.org/10.1016/J.DESAL.2019.04.020>;
44. G. Battaglia, L. Gurreri, G. Airò Farulla, A. Cipollina, A. Pirrotta, G. Micale, M. Ciofalo, *Membrane deformation and its effects on flow and mass transfer in the electromembrane processes*, *Int. J. Mol. Sci.* 20 (2019) 1840, <https://doi.org/10.3390/IJMS20081840>;
45. M. Ciofalo, M. Di Liberto, L. Gurreri, M. La Cerva, L. Scelsi, *Mass transfer in ducts with transpiring walls*, *Int. J. Heat Mass Transf.* 132 (2019) 1074–1086, <https://doi.org/10.1016/J.IJHEATMASTRANSFER.2018.12.059>;
46. M. La Cerva, L. Gurreri, M. Tedesco, A. Cipollina, M. Ciofalo, A. Tamburini, G. Micale, *Determination of limiting current density and current efficiency in electrodialysis units*, *Desalination* 445 (2018) 138–148, <https://doi.org/10.1016/j.desal.2018.07.028>;
47. A. Campione, L. Gurreri, M. Ciofalo, G. Micale, A. Tamburini, A. Cipollina, *Electrodialysis for water desalination: a critical assessment of recent developments on process fundamentals, models and applications*, *Desalination* 434 (2018) 121–160, <https://doi.org/10.1016/j.desal.2017.12.044>;
48. L. Gurreri, G. Battaglia, A. Tamburini, A. Cipollina, G. Micale, M. Ciofalo, *Multi-physical modelling of reverse electrodialysis*, *Desalination* 423 (2017) 52–64, <https://doi.org/10.1016/j.desal.2017.09.006>;
49. L. Gurreri, A. Tamburini, A. Cipollina, G. Micale, M. Ciofalo, *Performance comparison between overlapped and woven spacers for membrane distillation*, *Desalin. Water Treat.*, 69 (2017) 178–189, <https://doi.org/doi:10.5004/dwt.2017.20236>;

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51. M. La Cerva, M. Ciofalo, L. Gurreri, A. Tamburini, A. Cipollina, G. Micale, *On some issues in the computational modelling of spacer-filled channels for membrane distillation*, Desalination 411 (2017) 101-111, <https://doi.org/10.1016/j.desal.2017.02.016>;
52. M. La Cerva, M. Di Liberto, L. Gurreri, A. Tamburini, A. Cipollina, G. Micale, M. Ciofalo, *Coupling CFD with a one-dimensional model to predict the performance of reverse electrodialysis stacks*, J. Membr. Sci. 541 (2017) 595-610, <https://doi.org/10.1016/j.memsci.2017.07.030>;
53. L. Gurreri, A. Tamburini, A. Cipollina, G. Micale, M. Ciofalo, *Flow and mass transfer in spacer-filled channels for reverse electrodialysis: a CFD parametrical study*, J. Membr. Sci., 497 (2016) 300-317, <https://doi.org/10.1016/j.memsci.2015.09.006>;
54. L. Gurreri, M. Ciofalo, A. Cipollina, A. Tamburini, W. van Baak, G. Micale, *CFD modelling of profiled-membrane channels for Reverse Electrodialysis*, Desalin. Water Treat., 55 (2015) 3404-3423, <https://doi.org/10.1080/19443994.2014.940651>;
55. A. Tamburini, A. Cipollina, S. Al-Sharif, M. Albeirutty, L. Gurreri, G. Micale, M. Ciofalo, *Assessment of temperature polarization in membrane distillation channels by liquid crystal thermography*, Desalin. Water Treat., 55 (2015) 2747-2765, <https://doi.org/10.1080/19443994.2014.957916>;
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71. L. Gurreri, A. Tamburini, A. Cipollina, G. Micale, M. Ciofalo, *Pressure drop in woven-spacer-filled channels for reverse electrodialysis: CFD prediction and experimental validation*, Euromed 2015 - Conference and Exhibition on Desalination for Clean Water and Energy, Palermo, Italy, 10-14 May, 2015;
72. A. Tamburini, A. Cipollina, G. Micale, M. Tedesco, L. Gurreri, *Sustainable water and energy: the EU-FP7 MEDIRAS and REAPOWER research projects*, International conference Greening the Islands! Integrated sustainability: Energy and Water for islands and remote locations, Pantelleria, Italy, 30-31 October, 2014;
73. L. Gurreri, A. Tamburini, A. Cipollina, G. Micale, M. Ciofalo, *CFD analysis of mass transfer in spacer-filled channels for reverse electrodialysis*, Second International Conference on Salinity Gradient Energy, Leeuwarden, The Netherlands, 10-12 September, 2014;
74. L. Gurreri, M. Ciofalo, A. Cipollina, A. Tamburini, W. van Baak, G. Micale, *CFD modelling of profiled membranes channels for reverse electrodialysis*, Conference and Exhibition on Desalination for the Environment, Clean Water and Energy, Limassol, Cyprus, 11-15 May, 2014;
75. A. Tamburini, A. Cipollina, S. Al-Sharif, M. Albeirutty, L. Gurreri, G. Micale, M. Ciofalo, *Measurements of temperature polarization phenomena in membrane distillation channels by a thermographic technique*,

Conference and Exhibition on Desalination for the Environment, Clean Water and Energy, Limassol, Cyprus, 11-15 May, 2014;

76. L. Gurreri, A. Tamburini, A. Cipollina, G. Micale, M. Ciofalo, *CFD Simulation of Mass Transfer Phenomena in Spacer Filled Channels for Reverse Electrodialysis Applications*, ICheaP 11 – 11th International Conference on Chemical & Process Engineering, Milan, Italy, 2-5 June 2013;
77. L. Gurreri, A. Tamburini, A. Cipollina, M. Ciofalo, G. Micale, *CFD analysis of concentration polarization phenomena in spacer-filled channels for Reverse Electro-Dialysis*, International Workshop on Salinity Gradient Energy, Milan, Italy, 4-6 September, 2012;
78. L. Gurreri, A. Tamburini, A. Cipollina, G. Micale, *Geometrical characterization of reverse electrodialysis stack via CFD simulations*, Conference and Exhibition on Desalination for the Environment, Clean Water and Energy, Barcelona, Spain, 22-26 April, 2012;
79. O. Scialdone, C. Guarisco, A. Galia, L. Gurreri, S. La Mantia, S. Sabatino, *Electrochemical treatment of organic pollutants in macro and micro reactors*, XXIV Congresso Nazionale della Società Chimica Italiana, Lecce, Italy, 11-16 September 2011;
80. O. Scialdone, S. Randazzo, L. Gurreri, G. Filardo, A. Galia, G. Silvestri, *Electrochemical processes for the treatment of chlorinated ethanes in water solutions*, The 60th annual meeting of the international society of electrochemistry, Beijing, China, 16-21 August, 2009.

Participation in research groups

Roles and projects

1. 01/01/2022 – present: **Assistant Professor** (“Ricercatore a Tempo Determinato, tipo A”) of **Chemical Plants** (SSD ICHI-02/A, previously *ING-IND/25*) at the **University of Catania**, Department of Electrical, Electronic and Computer Engineering, position funded by the European Union, European Social Fund – REACT EU, PON Ricerca e Innovazione 2014–2020, Azione IV.6 “Contratti di ricerca su tematiche Green” (DM 1062/2021) with a project titled “*Smart systems for the production of energy and high added value compounds using algal and/or bacterial biomass reactors*” in the three years 2022-2024, and co-funded by the AUDI project (Toward to an Abilitant-Ubique sme's Designed productive Island, NPRR, MICS – Made in Italy Circolare e Sostenibile) and Life Pharma-Detox project (Demonstration of an innovative method for the detoxification of pharmaceutical wastewater from pharmaceutical facilities, LIFE20 program) since 01/01/2025. The research activity has been carried out within the framework of various **national and international projects**:
 - i. **CIRCOLARE** – Nanostrutture Carboniose da Scarti Agricoli per l'Accumulo di Idrogeno allo Stato Solido, PNRR M2C2 I3.5 DR. MASE n.27/2025 scorrimento Avviso n.4/2022, Prog.n. RSH2A_000015 - CUP F57G25000160006 – funded by the European Union – NextGenerationEU;
 - ii. **MEDWISE** – Mediterranean Waste Innovations for Sustainable Environments, Interreg NEXT MED 2021-2027, A_T_2.4_0393, <https://www.interregnextmed.eu/project-page/medwise/about/>;
 - iii. **LANDFEED** – Unlocking efficient bio-based fertilisers for soil sustainability from underutilised side streams, call HORIZON-JU-CBE-2023-IA-02 Production of safe, sustainable, and efficient bio-based fertilisers to improve soil health and quality, <https://landfeed.eu>;
 - iv. **AGRITECH** National Research Center for Technology in Agriculture, Spoke 3 Enabling technologies and sustainable strategies for the smart management of agricultural systems and their environmental impact, European Union Next-GenerationEU National Recovery and Resilience Plan, <https://agritechcenter.it>;
 - v. **SMARTEE-PLANTS** – Smart Energy-Efficiency wastewater treatment Plants – Action 1.1.5 PO FESR Sicilia 2014-2020, project number 08CT3600000330, CUP G57H18002050006, <https://smartee-plants.it/>;

- vi. **LIFE PHARMA-DETOX** – Demonstration of an innovative method for the detoxification of pharmaceutical wastewater from pharmaceutical facilities – LIFE Programme, LIFE20 ENV/CY/000615, <https://pharmadetox.eu>.

2. From 2011 to 2023, various roles in **Conceptual design of chemical processes** (SSD *ING-IND/26*) at the **University of Palermo**:

- 24/06/2021 – 31/03/2023: “Cultore della Materia” for the course of “Tecnologie a membrana per l’ingegneria biomedica” at the University of Palermo, Engineering Department;
- 29/11/2021 – 31/12/2021: Post-graduated scholarship on “*Multi-scale modelling of integrated processes for the valorization of seawater brines*”, 12 months, at the University of Palermo, Engineering Department;
- 04/05/2021 – 04/11/2021: **Post-doctoral research** on “*Mathematical modelling and numerical simulation of electrodialysis and reverse electrodialysis systems*”, 6 months, at the University of Palermo, Engineering Department;
- 20/06/2019-19/06/2021: “Cultore della Materia” for the courses of “Tecnologie a membrana per l’ingegneria biomedica” (membrane technologies for biomedical engineering) and “Operazioni di separazione a membrana” (membrane separation operations) at the University of Palermo, Engineering Department;
- 04/04/2019 – 03/04/2021: **Post-doctoral research** on “*Mathematical modelling and numerical simulation of electrodialysis and reverse electrodialysis systems*”, 24 months, at the University of Palermo, Engineering Department;
- 01/02/2017 – 31/01/2019: **Post-doctoral research** on “*Mathematical modelling of electrodialysis systems for sea and brackish waters desalination*”, 24 months, at the University of Palermo, Dipartimento dell’Innovazione Industriale e Digitale (DIID) - Ingegneria Chimica, Gestionale, Informatica, Meccanica;
- 21/07/2015 – 20/01/2017: **Post-doctoral research** on “*Membrane separation processes: CFD modelling and process simulation*”, 18 months, at the University of Palermo, Dipartimento di Ingegneria Chimica, Gestionale, Informatica, Meccanica;
- 27/04/2015 – 26/05/2015: Consulting work on “*Analysis and characterization of the thermofluidodynamic behaviour of spacer-filled channels for membrane distillation modules in presence of overlapped and woven spacers*”, at the University of Palermo, Dipartimento di Ingegneria Chimica, Gestionale, Informatica, Meccanica;
- 01/01/2012 – 31/12/2014: **PhD in Chemical and Materials Engineering**, at the University of Palermo, Dipartimento di Ingegneria Chimica, Gestionale, Informatica, Meccanica; Thesis: *Computational fluid dynamics of reverse electrodialysis systems*;
- 21/06/2011 – 20/12/2011: post-graduated scholarship on “*Mathematical modelling and numerical simulation of reverse electrodialysis units*”, 6 months, at the University of Palermo, Dipartimento di Ingegneria Chimica, Gestionale, Informatica, Meccanica.

This research activity has been largely carried out within the framework of several **international projects**:

- i. **SEArcularMINE** – Circular Processing of Seawater Brines from Saltworks for Recovery of Valuable Raw Materials – Horizon 2020 Programme, Grant Agreement no. 869467, www.searcularmine.eu;
- ii. **BAoBaB** – Blue Acid/Base Battery, Horizon 2020 programme, Grant Agreement no. 731187, www.baobabproject.eu;
- iii. **REvived** – Low energy solutions for drinking water production by a Revival of ElectroDialysis system – Horizon 2020 programme, Grant Agreement no. 685579, www.revivedwater.eu;
- iv. **RED-Heat-to-Power** – Conversion of Low Grade Heat to Power through closed loop Reverse ElectroDialysis – Horizon 2020 programme, Grant Agreement no. 640667, <http://www.red-heat-to-power.eu>;
- v. **REAPower** – Reverse Electrodialysis Alternative Power production – EU-FP7 Programme, Grant Agreement no. 256736, www.reapower.eu.
- vi. **MEDIRAS** – Membrane Distillation in Remote Areas – EU-FP7 Programme, Grant Agreement no. 218938, <https://www.mediras.eu/>.

Leadership within research projects, responsibility of WPs

- **MEDWISE** – Mediterranean Waste Innovations for Sustainable Environments, Interreg NEXT MED 2021-2027, <https://www.interregnextmed.eu/project-page/medwise/about/>, project **Communication Manager** and responsible for **WP2** Communication;
- **SEArcularMINE** – Circular Processing of Seawater Brines from Saltworks for Recovery of Valuable Raw Materials – Horizon 2020 Programme, Grant Agreement no. 869467, www.searcularmine.eu, responsible for **WP7** Process modelling and development of a Simulation Platform;
- **BAoBaB** – Blue Acid/Base Battery, Horizon 2020 programme, Grant Agreement no. 731187, www.baobabproject.eu, responsible for **WP4** System and grid integration;
- **REvived** – Low energy solutions for drinking water production by a Revival of ElectroDialysis system – Horizon 2020 programme, Grant Agreement no. 685579, www.revivedwater.eu, responsible for **WP6** Multi-stage ED and Integrated RED-ED system – pilot plant development and demonstration for SW desalination, and for **WP7** Integrated ED/RED - RO system - pilot plant development and demonstration for SW desalination.

Contribution to successful project proposals funded by national/international programs

- **CIRCOLARE** – Nanostrutture Carboniose da Scarti Agricoli per l'Accumulo di Idrogeno allo Stato Solido, PNRR M2C2 I3.5 DR. MASE n.27/2025 scorrimento Avviso n.4/2022, Project n. RSH2A_000015 - CUP F57G25000160006 – funded by the European Union – NextGenerationEU;
- **MEDWISE** – Mediterranean Waste Innovations for Sustainable Environments, Interreg NEXT MED 2021-2027, A_T_2.4_0393, <https://www.interregnextmed.eu/project-page/medwise/about/>;
- **LANDFEED** – Unlocking efficient bio-based fertilisers for soil sustainability from underutilised side streams, call HORIZON-JU-CBE-2023-IA-02 Production of safe, sustainable, and efficient bio-based fertilisers to improve soil health and quality, <https://landfeed.eu>;

Research activity performed abroad as a host at international institutions

- At **FUJIFILM Europe**, Tilburg (The Netherlands), November-December 2015, on the experimental characterization of “breathing cell” dynamic systems of reverse electro dialysis units;
- At the **University of Twente**, Faculty of Science and Technology, Membrane Science & Technology group, Enschede (The Netherlands), April-July 2013, on the experimental investigation of limiting current phenomena in electromembrane processes.

Participation in editorial boards

- Topical Advisory Panel member of the journal Membranes, 01 August 2021 – present, https://www.mdpi.com/journal/membranes/topical_advisory_panel?search=gurreri ;
- Topic Editor of the journal Membranes, 09 November 2020 – 31 July 2021;
- **Guest Editor** of the Special Issue “Electromembrane Processes: Experiments and Modelling” in Membranes (MDPI) https://www.mdpi.com/journal/membranes/special_issues/electromembrane_processes

Awards and honors

- The scientific review article “N. Cancilla, A. Cipollina, L. Gurreri, M. Ciofalo, *Direct Contact Membrane Distillation: A Critical Review of Transmembrane Heat and Mass Transfer Models*. Membranes. 16 (2026) 64. <https://doi.org/10.3390/membranes16020064>” has been recognized as having high scientific value and used for illustration on the cover of an issue of the Membranes journal, MDPI, <https://www.mdpi.com/2077-0375/16/2>.

06/02/2026.

- The scientific review article “L. Gurreri, M. Calanni Rindina, A. Luciano, D. Fino, G. Mancini. *Is the Production of Microalgae and the Derived Bioproducts Sustainable? A Meta-Review Outlining the Challenges and*

Opportunities of Circular Bioeconomy and Zero-Waste Approaches. J. Environ. Chem. Eng. 13 (2025) 118053. <https://doi.org/10.1016/j.jece.2025.118053>” has been cited and recognized as an excellent work in the paper from a Nature Portfolio Journal “C.L. Trotter, K. Clouston, J.F.C. Steele, L. Marlow, S. Wallace, Interfacing solar energy with bacterial metabolism for sustainable chemical synthesis, Nat. Rev. Clean Technol. 2 (2026) 123–150. <https://doi.org/10.1038/s44359-025-00141-2>.”

29/01/2026.

- Best poster award for the work “G. Battaglia, L. Gurreri, A. Tamburini, A. Pirrotta, A. Cipollina, M. Ciofalo, G. Micale, *A novel 2D process model of electrodialysis units in cross-flow layout for the assessment of membrane deformation effects*”, presented at the conference “Desalination for the Environment: Clean Water and Energy, Las Palmas de Gran Canaria, Spain, 20 – 23 June, 2022”.

23-06-2022.

- The scientific review article “L. Gurreri, A. Tamburini, A. Cipollina, G. Micale, *Electrodialysis Applications in Wastewater Treatment for Environmental Protection and Resources Recovery: A Systematic Review on Progress and Perspectives*. Membranes. 10 (2020) 146. <https://doi.org/10.3390/membranes10070146>” has been recognized as having high scientific value and used for illustration on the cover of an issue of the Membranes journal, MDPI, <https://www.mdpi.com/2077-0375/10/7>.

10/07/2020.

- Best paper award at the Engineering Department of the University of Palermo awarded to the article “A. Campione, L. Gurreri*, M. Ciofalo, G. Micale, A. Tamburini, A. Cipollina, *Electrodialysis for water desalination: A critical assessment of recent developments on process fundamentals, models and applications*. Desalination. 434 (2018) 121–160, <https://doi.org/10.1016/j.desal.2017.12.044>”, second prize for the journal's normalized position in the ranking of the prestige indicator (subject category: water science and technology). Note: the prize is nominally assigned to the first author of the work or the corresponding author. The undersigned is the corresponding author of the work.

18-12-2019.

- The scientific activities in which the undersigned has actively participated, relating to the production of electricity from saline gradients by means of Reverse Electrodialysis (activity subject of the European project REAPower) and the conversion of waste heat into electric current by means of a salinity gradient heat engine (called also closed-loop reverse electrodialysis) (activity covered by the European RED Heat-to-Power project) aroused the interest of the well-known Super Quark program with scientific content, which carried out two days of filming on the aforementioned activities. The service aired on the Italian national television channel Rai 1.

03-08-2016.

<https://drive.google.com/file/d/1X2XhOuwpuYUaUMHyLWJxckeGu3yISHFpe/view?usp=sharing>

Conferences attended as a presenter

1. *E2DT 2025 – 3rd International Conference on Energy, Environment & Digital Transition*, Palermo, Italy, 12-15 October, 2025, oral presentation: D. Bonanno, A. Luciano, C. Gatto, G. Benina, L. Gurreri, G. Mancini, *Circular and Sustainable Approaches for the Management and Treatment of Incineration Bottom Ash*;
2. *E2DT 2025 – 3rd International Conference on Energy, Environment & Digital Transition*, Palermo, Italy, 12-15 October, 2025, oral presentation: L. Gurreri, M. Calanni Rindina, D. Bonanno, A. Luciano, D. Fino, G. Mancini, *Environmental Impact of Microalgae Production in an Industrial-Scale Plant: A Comparative Scenario Analysis*;
3. *ICheaP-17 – 17th International Conference on Chemical and Process Engineering*, Firenze, Italy, 29 June-2 July, 2025, oral presentation: D. Bonanno, A. Luciano, L. Gurreri, M. Coltelli, G. Benina, G. Mancini, *Sustainable Solutions for the Management and Valorization of Volcanic Ash*;
4. *12th International Conference on Sustainable Solid Waste Management*, Paphos, Cyprus, 25-28 June, 2025, oral presentation (on-line): L. Gurreri, M. Calanni Rindina, D. Bonanno, A. Luciano, G. Mancini, D. Fino, *LCA of a microalgal plant under alternative scenarios: Photovoltaic energy and cultivation in wastewater*;
5. *11th International Conference on Sustainable Solid Waste Management*, Rhodes, Greece, 19-22 June, 2024, oral presentation: L. Gurreri, G. Mancini, A. Luciano, M. Calanni Rindina, D. Bonanno, D. Fino, *Sustainability of microalgal industries: meta-analysis and prospects for the development of a viable bio-economy*;

6. *IConBM2024 – International Conference on Biomass*, Palermo, Italy, 19 – 22 May, 2024, oral presentation: L. Gurreri, M. Calanni Rindina, A. Luciano, L. Falqui, G. Mancini, *Life Cycle Assessment Based on Primary Data of an Industrial Plant for Microalgae Cultivation*;
7. *E2DT 2023 – 2nd International Conference on Energy, Environment & Digital Transition*, Palermo, Italy, 22-25 October, 2023, oral presentation: L. Gurreri, M. Calanni Rindina, A. Luciano, L. Falqui, G. Mancini, D. Fino, *Life Cycle Inventory based on primary data of an industrial plant for the cultivation of chlorella vulgaris*;
8. *10th International Conference on Sustainable Solid Waste management*, Chania, Greece, 21-24 June, 2023, oral presentation (on-line): L. Gurreri, G. Mancini, A. Luciano, M. Calanni Rindina, L. Falqui, D. Fino, *Life cycle inventory of microalgae production in a real industrial plant*;
9. *European symposium on electrochemical engineering – ESEE – Electrochemistry for electrification and energy transition toward a sustainable future*, Leeuwarden, the Netherlands, 13-17 June, 2021, oral presentation (on-line): L. Gurreri, A. Cosenza, A. Zaffora, L. Muratore, D.A. Agnello, A. Tamburini, G. Micale, *Lab-scale experiments on a novel acid/base electrodialytic flow battery with bipolar membranes*;
10. *Membrane and electromembrane processes – MELPRO 2020*, Prague, Czech Republic, 08-11 November, 2020, oral presentation (on-line): A. Culcasi, A. Zaffora, A. Cosenza, M. Di Liberto, L. Gurreri, A. Tamburini, A. Cipollina, G. Micale, *A validated multi-scale model of a novel electrodialytic acid-base flow battery*;
11. *Membrane and electromembrane processes – MELPRO 2020*, Prague, Czech Republic, 08-11 November, 2020, oral presentation (on-line): G. Battaglia, L. Gurreri, A. Cipollina, A. Tamburini, M. Ciofalo, A. Pirrotta, G. Micale, *A process model of electrodialysis including membrane deformation effects*;
12. *12th European Congress of Chemical Engineering ECCE 12*, Florence, Italy, 15-19 September, 2019, oral presentation: L. Gurreri, I. El Mokhtar, S. Al Tahar Bouguecha, M. La Cerva, A. Tamburini, A. Cipollina, M. Ciofalo, G. Micale, *Numerical simulations supporting process models of chemical engineering: applications for membrane systems*;
13. *Desalination for the Environment: Clean Water and Energy - Science, Research, Innovation, Industry, Business*, Athens, Greece, 3-6 September, 2018, oral presentation: M. La Cerva, L. Gurreri, A. Cipollina, A. Tamburini, M. Ciofalo, G. Micale, *Modelling hybrid systems for seawater desalination: electromembrane processes (RED, ARED and ED) coupled with RO*;
14. *Euromembrane 2018*, Valencia, Spain, 9-13 July, 2018, poster presentation: L. Gurreri, M. Di Liberto, L. Scelsi, A. Tamburini, A. Cipollina, M. Ciofalo, G. Micale, *CFD study on the influence of water transpiration on flow and mass transfer in channels with bipolar membranes*;
15. *Euromembrane 2018*, Valencia, Spain, 9-13 July, 2018, poster presentation: G. Battaglia, M. Ciofalo, A. Cipollina, A. Di Matteo, L. Gurreri, A. Pirrotta, A. Tamburini, G. Micale, *Mechanical-fluid dynamics coupled model for profiled Ion Exchange Membranes design*;
16. *Desalination for Clean Water and Energy Cooperation around the World*, Tel Aviv, Israel, 9-12 May, 2017, oral presentation: M. La Cerva, L. Gurreri, A. Cipollina, A. Tamburini, M. Di Liberto, M. Ciofalo, G. Micale, *Coupling CFD simulation with a simplified process model for reverse electrodialysis units*;
17. *International Conference on Membranes in Drinking and Industrial Water Production*, Leeuwarden, the Netherlands, 6-8 February, 2017, oral presentation: M. La Cerva, L. Gurreri, A. Cipollina, A. Tamburini, M. Ciofalo, G. Micale, *CFD simulation of Electrodialysis channels equipped with profiled membranes*;
18. *Desalination for the Environment: Clean Water and Energy*, Roma, Italy, 22-26 May, 2016, oral presentation: L. Gurreri, F. Santoro, G. Battaglia, A. Cipollina, A. Tamburini, G. Micale, M. Ciofalo, *Multi-physical modelling of Reverse ElectroDialysis*;
19. *Desalination for the Environment: Clean Water and Energy*, Roma, Italy, 22-26 May, 2016, poster presentation: L. Gurreri, A. Tamburini, A. Cipollina, G. Micale, M. Ciofalo, *Heat-transfer performance comparison between overlapped and woven spacers for membrane distillation*;
20. *Euromembrane 2015*, Aachen, Germany, 6-10 September, 2015, poster presentation: L. Gurreri, F. Santoro, A. Cipollina, A. Tamburini, M. Ciofalo, G. Micale, *A multi-physics modelling tool for Reverse Electrodialysis*;
21. *Euromed 2015 - Conference and Exhibition on Desalination for Clean Water and Energy*, Palermo, Italy, 10-14 May, 2015, oral presentation: L. Gurreri, A. Tamburini, A. Cipollina, G. Micale, M. Ciofalo, *Pressure drop in woven-spacer-filled channels for reverse electrodialysis: CFD prediction and experimental validation*;
22. *Second International Conference on Salinity Gradient Energy*, Leeuwarden, The Netherlands, 10-12 September, 2014, oral presentation: L. Gurreri, A. Tamburini, A. Cipollina, G. Micale, M. Ciofalo, *CFD analysis of mass transfer in spacer-filled channels for reverse electrodialysis*;

23. *Conference and Exhibition on Desalination for the Environment, Clean Water and Energy*, Limassol, Cyprus, 11-15 May, 2014, oral presentation: L. Gurreri, M. Ciofalo, A. Cipollina, A. Tamburini, W. van Baak, G. Micale, *CFD modelling of profiled membranes channels for reverse electrodialysis*;
24. *International Workshop on Salinity Gradient Energy*, Milan, Italy, 4-6 September, 2012, oral presentation: L. Gurreri, A. Tamburini, A. Cipollina, M. Ciofalo, G. Micale, *CFD analysis of concentration polarization phenomena in spacer-filled channels for Reverse Electro-Dialysis*;
25. *Conference and Exhibition on Desalination for the Environment, Clean Water and Energy*, Barcelona, Spain, 22-26 April, 2012, oral presentation: L. Gurreri, A. Tamburini, A. Cipollina, G. Micale, *Geometrical characterization of reverse electrodialysis stack via CFD simulations*.

MANAGEMENT, ORGANIZATION, AND SERVICE ACTIVITIES

Participation in selection committees

Research scholarships

- April 2025: selection of personnel for 1 scholarship for activities on *Analysis of the impacts of the management of organic civil and agro-industrial residues and development of decision-supporting smart systems in the mobile environment for their minimization*, MEDWISE project, 12 months, Department of Electrical, Electronic and Computer Engineering, University of Catania;
- March 2025: selection of personnel for 1 scholarship for activities on *Long-term validation of a mathematical model of the oxidative phase of a wastewater treatment plant and identification of possible corrective actions*, SMARTEE-PLANTS project, 5 months, Department of Electrical, Electronic and Computer Engineering, University of Catania;
- March 2025: selection of personnel for 1 scholarship for activities on the *Analysis of kinetic factors in biological oxidative processes for wastewater treatment in full-scale plants*, SMARTEE-PLANTS project, 5 months, Department of Electrical, Electronic and Computer Engineering, University of Catania;
- March 2025: selection of personnel for 1 scholarship for activities on the *Development of process control systems in the oxidation phase of wastewater treatment plants*, SMARTEE-PLANTS project, 5 months, Department of Electrical, Electronic and Computer Engineering, University of Catania;
- August 2024: selection of personnel for 1 scholarship for activities on *Mathematical modelling for the simulation of wastewater treatment plants aimed at energy efficiency and decarbonization of the oxidative phase*, SMARTEE-PLANTS project, 11 months, Department of Electrical, Electronic and Computer Engineering, University of Catania;
- August 2024: selection of personnel for 1 scholarship for activities on *Critical and comparative analysis of management data and benchmarking of wastewater treatment plants for identifying energy efficiency and process decarbonization strategies*, SMARTEE-PLANTS project, 11 months, Department of Electrical, Electronic and Computer Engineering, University of Catania.

Research fellows

- April 2024: selection of personnel for 1 research fellow for activities on *Energy efficiency strategies for wastewater treatment plants*, SMARTEE-PLANTS project, 1 year, Department of Electrical, Electronic and Computer Engineering, University of Catania;
- November-December 2023: selection of personnel for 1 research fellow for activities on *LCA of treatment processes of pharmaceutical wastewater*, LIFE PHARMA-DETOX project, 1 year, Department of Electrical, Electronic and Computer Engineering, University of Catania;
- November-December 2023: selection of personnel for 1 research fellow for activities on *Energy efficiency strategies for wastewater treatment plants*, SMARTEE-PLANTS project, 1 year, Department of Electrical, Electronic and Computer Engineering, University of Catania.

Self-employed Contractors

- February 2026: selection of 1 self-employed contractor for activities on *Design and development of a web app for the intelligent analysis of food products and the predictive spending management*, MEDWISE project, 10 months, Department of Electrical, Electronic and Computer Engineering, University of Catania;
- October 2025: selection of 1 self-employed contractor for activities on *1) Replicate the results of the experimental case study, 2) Monitor the environmental impact and conduct the LCA study, and 3) Monitor the socioeconomic impact and conduct the LCC and S-LCA study*, LIFE PHARMA-DETOX project, 13 months, Department of Electrical, Electronic and Computer Engineering, University of Catania;
- September 2025: selection of 1 self-employed contractor for activities on *Financial audit, control and certification of expenses incurred in relation to the activities envisaged by the “LANDFEED” project*, LANDFEED project, 38 months, Department of Electrical, Electronic and Computer Engineering, University of Catania;
- April 2025: selection of 1 self-employed contractor for activities on *Energy analysis at wastewater treatment plants and process optimization aimed at energy saving*, SMARTEE-PLANTS project, 5 months, Department of Electrical, Electronic and Computer Engineering, University of Catania;
- February 2025: selection of 1 self-employed contractor for activities on *1) Application of the demonstrator prototype with multi-sensory nodes and a control system at the three plants being tested, with particular reference to the wastewater treatment plant managed by SIDRA, located in Catania, 2) Short-term verification, identification of potential critical issues, and site-specific fine-tuning, and 3) Long-term verification on a seasonal basis*, SMARTEE-PLANTS project, 7 months, Department of Electrical, Electronic and Computer Engineering, University of Catania;
- February 2025: selection of 1 self-employed contractor for activities on *1) Consumption analysis and determination of optimal energy management methods using a demonstrator installed at the wastewater treatment plants covered by the project, with specific but not exhaustive reference to the wastewater treatment plant managed by SIDRA, located in Catania, 2) Definition of energy efficiency strategies for the most energy-intensive assets, and 3) Drafting of the operations manual and guidelines for the specific plant type*, SMARTEE-PLANTS project, 7 months, Department of Electrical, Electronic and Computer Engineering, University of Catania;
- February 2025: selection of 1 self-employed contractor for activities on *1) Implementation of process control feedback algorithms aimed at energy saving using a demonstrator installed at the wastewater treatment plant managed by SIDRA, located in Catania, and 2) Platform optimization and development of a user-friendly graphical interface*, SMARTEE-PLANTS project, 7 months, Department of Electrical, Electronic and Computer Engineering, University of Catania.

Training courses

- August 2023: Selection of 80 graduates for the online course *Waste management between law and technology*, GREEN JOBS 2023, Consorzio NAzionale Imballaggi (CONAI), 1 month (24 sessions); Department of Electrical, Electronic and Computer Engineering, University of Catania.

Activities of conference organization

- *Desalination for the Environment: Clean Water and Energy*, Roma, Italy, 22-26 May, 2016;
- *Euromed 2015 - Conference and Exhibition on Desalination for Clean Water and Energy*, Palermo, Italy, 10-14 May, 2015;
- *Conference and Exhibition on Desalination for the Environment, Clean Water and Energy*, Limassol, Cyprus, 11-15 May, 2014;
- *Conference and Exhibition on Desalination for the Environment, Clean Water and Energy*, Barcelona, Spain, 22-26 April, 2012.

In compliance with the Italian legislative Decree no. 196 dated 30/06/2003 and with the General Data Protection Regulation UE 2016/679, I hereby authorize the recipient of this document to use and process my personal details for the purpose of recruiting and selecting staff.

Catania, 19 June 2026

Signature

A handwritten signature in black ink, appearing to read "Luigi Geronzi". The signature is written in a cursive style with a large initial 'L' and 'G'.